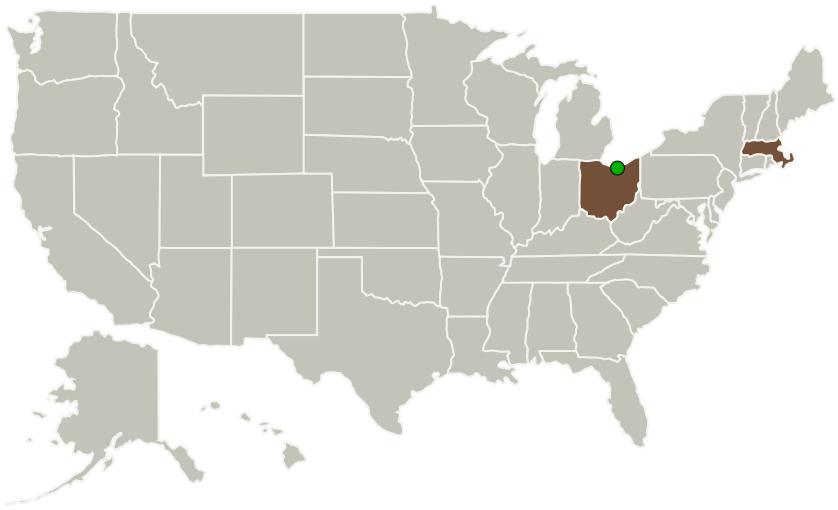
Multifunctional Composite for Integrated Strain, Damage and Temperature Sensing, Phase I

Completed Technology Project (2015 - 2015)

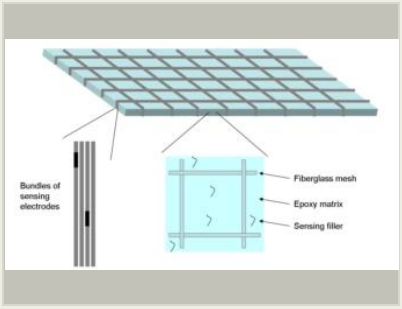
Project Introduction

TIAX proposes to develop lightweight, smart composite materials capable of sensing their own mechanical and thermal state. These composites will add functionality to structural materials used both in NASA missions and high-performance commercial applications. We will build on literature methods to sense strain, damage initiation and propagation, and temperature in composite materials to prepare, in a manner consistent with production-scale manufacturing and integration into real-world systems, multifunctional composites capable of reporting on their own health. These composites will be tested to ensure that their mechanical properties meet or exceed those of the base composite and to demonstrate that the embedded sensing capability accurately reports on composite health.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
TIAX LLC	Lead Organization	Industry	Lexington, Massachusetts
Glenn Research Center(GRC)	Supporting Organization	NASA Center	Cleveland, Ohio



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Primary U.S. Work Locations	
Massachusetts	Ohio

Project Transitions

June 2015: Project Start

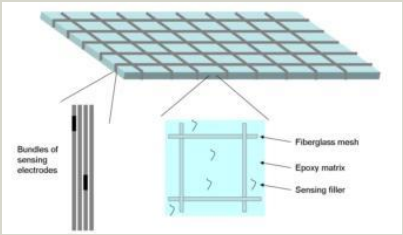
December 2015: Closed out

Closeout Summary: Multifunctional Composite for Integrated Strain, Damage and Temperature Sensing, Phase I Project Image

Closeout Documentation:

- Final Summary Chart Image*(https://techport.nasa.gov/file/139263)*

Images



Briefing Chart Image
Multifunctional Composite for Integrated Strain, Damage and Temperature Sensing, Phase I *(https://techport.nasa.gov/image/136755)*

Organizational Responsibility

Responsible Mission Directorate:
Space Technology Mission Directorate (STMD)

Lead Organization:
TIAX LLC

Responsible Program:
Small Business Innovation Research/Small Business Tech Transfer

Project Management

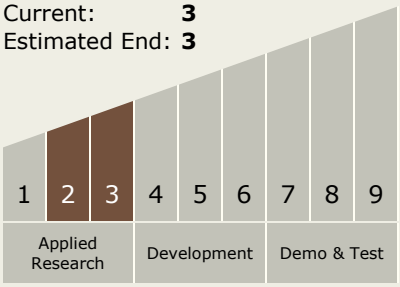
Program Director:
Jason L Kessler

Program Manager:
Carlos Torrez

Principal Investigator:
Brad Pindzola

Technology Maturity (TRL)

Start: **2**
Current: **3**
Estimated End: **3**



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Technology Areas

Primary:

- TX12 Materials, Structures, Mechanical Systems, and Manufacturing
  - TX12.2 Structures
    - TX12.2.5 Innovative, Multifunctional Concepts

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System